(19) World Intellectual Property Organization International Bureau



(43) International Publication Date 30 June 2005 (30.06.2005)

PCT

(10) International Publication Number WO 2005/059835 A1

- (51) International Patent Classification7:
- G06T 7/00
- (21) International Application Number:

PCT/IB2004/052683

- (22) International Filing Date: 7 December 2004 (07.12.2004)
- (25) Filing Language:

English

(26) Publication Language:

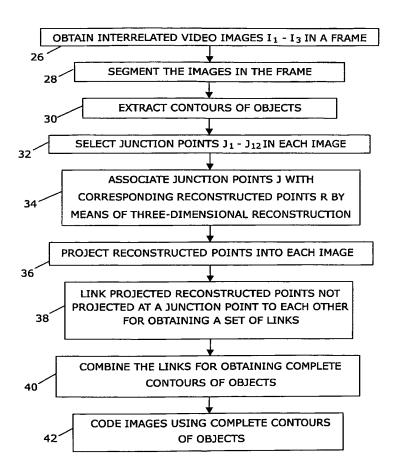
English

- (30) Priority Data: 03104693.1
- 15 December 2003 (15.12.2003) EP
- (71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

- (72) Inventors; and
- (75) Inventors/Applicants (for US only): RODRIGUES, Rui, P., A. [PT/PT]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). ERNST, Fabian, E. [DE/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). VAN OVERVELD, Cornelius, W., A., M. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). BORBA RAMIRES FERNANDES, António, J. [PT/PT]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (74) Agents: GROENENDAAL, Antonius, W., M. et al.; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,

[Continued on next page]

(54) Title: CONTOUR RECOVERY OF OCCLUDED OBJECTS IN IMAGES



(57) Abstract: The present invention relates to a method, apparatus and computer program product for providing contour information related to images. An image obtaining unit obtains a set of interrelated images (step 26), an image segmenting unit segments said images, (step 28) and a contour determining unit (22) extracts at least two contours from the segmentation (step 30), selects interest points on the contours of each image (step 32), associates interest points with corresponding reconstructed points by means of three-dimensional reconstruction (step projects reconstructed points into the images (step 36), and links reconstructed points not projected at a junction or their projections to each other in order to provide a first set of links (step 38), such that at least a reasonable part of a contour of an object can be determined based on the linked reconstructed points.



WO 2005/059835 A1

MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.